

LISTING OF CLAIMS

1. (previously presented) A system for inspecting a specimen, comprising:

an illumination system comprising an arc lamp able to provide light energy having a wavelength in the range of less than approximately 320 nanometers; and

an imaging subsystem oriented and configured to receive said light energy from said illumination system and direct light energy toward said specimen, said imaging subsystem comprising a plurality of elements all aligned along a single axis, each element having diameter less than approximately 100 millimeters, wherein the imaging subsystem is configured to provide a field size in excess of approximately 0.4 millimeters at a numerical aperture of approximately 0.90 for the light energy received from the illumination system having the wavelength in the range of less than approximately 320 nanometers.

2. (previously presented) The system of claim 1, wherein said plurality of elements comprises a mangin mirror arrangement.

3. (canceled)

4. (cancelled)

5. (previously presented) The system of claim 1, said plurality of elements comprising collection optics for collecting light energy reflected from said specimen, wherein the collection optics are catadioptric.

6. (previously presented) The system of claim 1 where the imaging and illumination subsystems support at least one of a group of inspection modes comprising bright field, ring dark field, directional dark field, full sky, aerial imaging, confocal, and fluorescence.

7. (previously presented) The system of claim 1 where the imaging subsystem uses a varifocal system for the full magnification range.

8. (previously presented) The system of claim 1 where separate imaging lenses are used for specific magnification increments.

9. (previously presented) The system of claim 1, further comprising a data analysis subsystem for analyzing data representing the light energy reflected from the specimen, wherein the data analysis subsystem has the ability to record defect position for any defect on the specimen.

10. – 68. (canceled)

69. (canceled)

70. (previously presented) The system of claim 5 where the catadioptric optics support wavelengths from approximately 266 – 600nm.

71. – 74. (canceled)

75. (previously presented) A system for inspecting a specimen, comprising:

an illumination system able to provide light energy having a wavelength within a predetermined range; and

an imaging subsystem oriented and configured to receive said light energy from said illumination system and direct light energy toward said specimen, said imaging subsystem comprising a plurality of optical elements all aligned along an axis and each having maximum diameter less than approximately 100 millimeters, wherein the imaging subsystem is configured to provide a field size in excess of approximately 0.4 millimeters at a numerical aperture of approximately 0.90.

76. (previously presented) The system of claim 75, wherein the predetermined range is approximately 285-320 nanometers.

77. (previously presented) The system of claim 75, wherein said plurality of optical elements comprises a mangin mirror arrangement.

78. (previously presented) The system of claim 75, wherein said plurality of optical elements comprises collection optics for collecting light energy reflected from said specimen, wherein the collection optics are catadioptric.

79. (previously presented) The system of claim 75, where the imaging and illumination subsystems support at least one of a group of inspection modes comprising bright field, ring dark field, directional dark field, full sky, aerial imaging, confocal, and fluorescence.

80. (previously presented) The system of claim 75, where the imaging subsystem uses a varifocal system for the full magnification range.

81. (previously presented) The system of claim 75, where separate imaging lenses are used for specific magnification increments.

82. (previously presented) The system of claim 75, further comprising a data analysis subsystem for analyzing data representing the light energy reflected from the specimen, wherein the data analysis subsystem has the ability to record defect position for any defect on the specimen.

83. (previously presented) A system for inspecting a specimen, comprising:

an illumination system able to provide light energy having a wavelength within a predetermined range; and

an imaging subsystem configured to receive said light energy and direct light energy toward said specimen using a plurality of elements having a maximum diameter less than approximately 100 millimeters, said plurality of elements being free of planar reflecting surfaces, wherein the imaging subsystem is configured to provide a field size in excess of approximately 0.4 millimeters at a numerical aperture of approximately 0.90.

84. (previously presented) The system of claim 83, wherein said plurality of elements comprises a mangin mirror arrangement.

85. (previously presented) The system of claim 83, further comprising a data analysis subsystem for analyzing data representing the light energy reflected from the specimen, wherein the data analysis subsystem has the ability to record defect position for any defect on the specimen.

86. (previously presented) A method for inspecting a specimen, comprising:

providing light energy having a wavelength within a predetermined range; and

receiving said light energy and directing light energy toward said specimen using a plurality of optical elements aligned collectively along a single axis, each optical element having maximum diameter less than approximately 100 millimeters, wherein the optical elements are configured to provide a field size in excess of approximately 0.4 millimeters at a numerical aperture of approximately 0.90.

87. (previously presented) The method of claim 86, wherein the predetermined range is approximately 285-320 nanometers.

88. (previously presented) The method of claim 86, wherein said plurality of optical elements comprises a mangin mirror arrangement.

89. (previously presented) The method of claim 86, wherein said plurality of optical elements comprises collection optics for collecting light energy reflected from said specimen, wherein the collection optics are catadioptric.

90. (previously presented) The method of claim 86, where providing and receiving and directing supports at least one of a group of inspection modes comprising bright field, ring dark field, directional dark field, full sky, aerial imaging, confocal, and fluorescence.

91. (previously presented) The method of claim 86, further comprising analyzing data representing the light energy reflected from the specimen, wherein analyzing data provides an ability to record defect position for any defect on the specimen.